

AUDIT II

Country Report IRELAND

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SUMMARY OF ENERGY AUDITING

The Irish Energy Centre was established in 1994 as Ireland's national agency for energy efficiency and renewable energy information, advice and support. The Centre's mission is to promote the development of a sustainable national energy economy. The organisation was established on initiative of the Department of Public Enterprise and is supported by the European Union through the Community Support Framework.

The expert staff devises and implement programmes to stimulate and maintain the demand for energy efficiency products and services. The strategy employed is designed to generate long term behavioural change, achieved through a process of assessing, informing, encouraging, implementing and supporting.

The Energy Advisory Board was established in 1994 to advise the Minister for Public Enterprise on matters of public policy in relation to energy efficiency, renewable energy and related research.

Several national Schemes has been launched by the Irish Energy Centre to support the above mentioned objectives, of which one, the "Annual Self Audit & Statement of Energy Accounts Scheme" will be described in greater detail in this document. Furthermore, the Centre has also run a programme called "Energy Audit Grant Scheme", which was terminated in 1998. This Scheme will also be briefly dealt with.

The Irish Energy Centre became the Sustainable Energy Authority of Ireland on 1 May 2002.

Energy Audit Programmes

There is presently no specific Energy Audit programme.

Other Programmes with Energy Audits

Annual Self-Audit and Statement of Energy Accounts Scheme

The Annual Self Audit and Statement of Energy Accounts Scheme was piloted by the Irish Energy Centre in 1994, as an EU SAVE initiative. At that stage, 10 major Irish companies from several sectors were recruited and registered to the scheme. The success of this phase led to an expansion of the programme and in 2001 76 companies were members of the Scheme. These companies account for over one-third of all energy used by industry in Ireland. The scheme is focused on large energy users and members generally have an annual energy spend of at least 1 million Euro.

The overall aim of the Annual Self Audit and Statement of Energy Accounts Scheme is to recruit a set of standard bearing companies and support and publicise their efforts towards better energy management and ever lower fuel bills.

The actual workings of the scheme fall into four parts:

- Registration Certificate
- Energy Policy Statement
- Energy Audit
- Annual Statement of Energy Accounts

The main focus within the company that has joined the scheme is to create a climate in which companies make real energy savings in their operations. The usual means to identifying opportunities for energy savings, for acting upon them and for evaluating them is the annual energy audit.

Other Activities including Energy Audits

There are no other activities, which include energy audits.

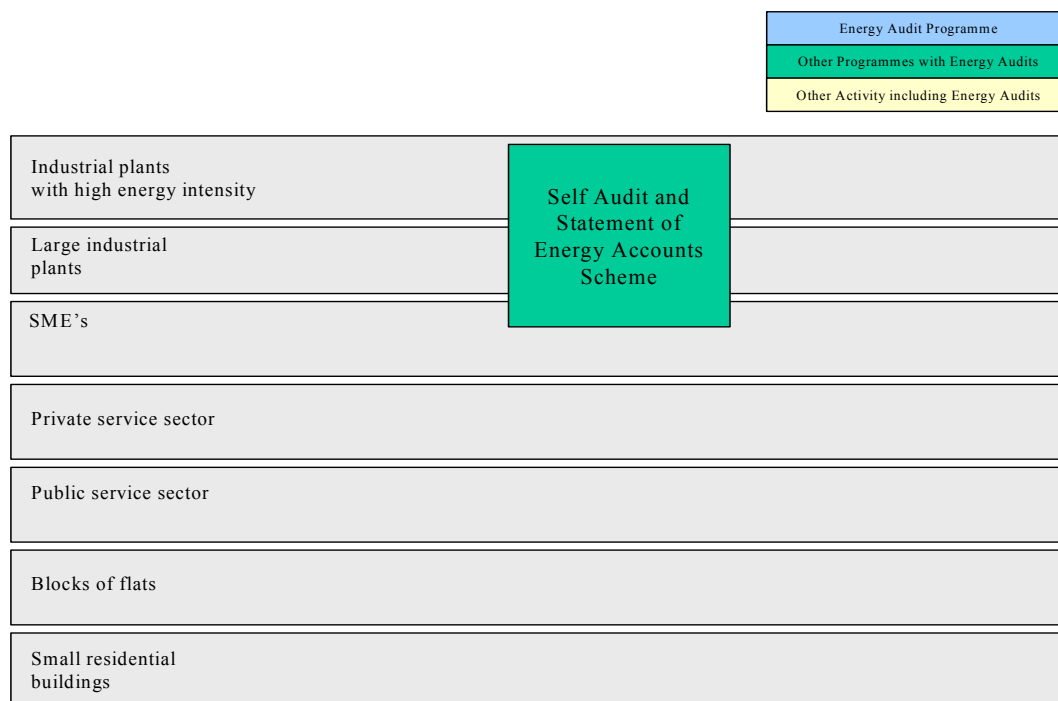


Figure 1. The Map of energy audits in Ireland

Table of EAP features coverage:

	Annual Self Audit & Statement of Energy Account Scheme
Status	1996 -
Administration	Irish Energy Centre
EA models	-
Auditors' tools	-
Training, authorisation	-
Quality control	-
Monitoring	+++
Volumes, results	-
Evaluation	++

- +++ = Detailed information available
- ++ = Some information available
- + = Very little information available
- = No information available / does not exist

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Country Report

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Disclaimer

The information contained in this report has been gathered from publicly available sources and through interviews. All efforts have been made to secure the veracity of the report, however the authors cannot guarantee the content.

THE COUNTRY REPORT

Table of Contents

1.	Background and Present National Policy.....	7
1.1	Present national policy and organisation.....	7
2.	Energy Audit Programmes.....	8
2.1	The Energy Audit Grant Scheme (EAGS)	8
2.1.1	Programme goals	8
2.1.2	Target sectors of the EAGS.....	8
2.1.3	Administration.....	8
2.1.4	Implementing instruments	8
2.1.5	Energy Audit Models	9
2.1.6	Auditors' Tools.....	10
2.1.7	Training and authorisation of consultants.....	10
2.1.8	Monitoring.....	10
2.1.9	Auditing volumes	10
2.1.10	Results	11
2.1.11	Evaluation.....	11
3.	Other Programmes including Energy Audits.....	12
3.1	Annual Self Audit & Statement of Energy Accounts Scheme	12
3.1.1	Program goals	13
3.1.2	Target sectors of the Scheme	14
3.1.3	Administration.....	14
3.1.4	Implementing instruments	14
3.1.5	Energy Audit Models	14
3.1.6	Auditors' Tools.....	14
3.1.6	Training and authorisation of consultants.....	14
3.1.7	Monitoring.....	15
3.1.8	Auditing volumes	15
3.1.9	Results	15
3.1.7	Evaluation.....	15

1. Background and Present National Policy

1.1 Present national policy and organisation

The Irish Energy Centre was established in 1994 as Ireland's national agency for energy efficiency and renewable energy information, advice and support. The Centre's mission is to promote the development of a sustainable national energy economy.

With headquarters in Glasnevin, Dublin, the Centre operates regional offices in Sligo and Cork city and provides a national service from the Renewable Energy Information Office in Bandon, County Cork. The organisation is an initiative of the Department of Public Enterprise and is supported by the European Union through the Community Support Framework.

The expert staff devises and implement programmes to stimulate and maintain the demand for energy efficiency products and services. The strategy employed is designed to generate long term behavioural change, achieved through a process of assessing, informing, encouraging, implementing and supporting.

The Energy Advisory Board was established in 1994 to advise the Minister for Public Enterprise on matters of public policy in relation to energy efficiency, renewable energy and related research.

In 1999, the Irish Government launched the Green Paper on Sustainable Energy. This Green Paper has resulted in many new initiatives to combat the green house effect and help Ireland meet its Kyoto commitments. The Irish Energy Centre has had an important role in the follow-up of the Green Paper, and on 1 May 2002 the Centre will turn into the Sustainable Energy Authority of Ireland. This authority will promote and assist environmentally and economically sustainable production, supply and use of energy, in support of Government policy, across all sectors of the economy.

It will focus on improving energy efficiency, advancing the development and competitive deployment of renewable sources of energy and combined heat and power, and reduce the environmental impact of energy production and use, particularly in respect of greenhouse gas emissions.

The Authority will be responsible for advising Government on policies and measures on sustainable energy, implementing programmes agreed by Government, and stimulating sustainable energy policies and actions by public bodies, the business sector, local communities and individual consumers.

The Irish Energy Centre ran an Energy Audit Programme in the 90's. It was called "Energy Audit Grant Scheme". The scheme was terminated in 1998. However, since it was a dedicated Energy Audit Scheme it has been included in chapter 2.

2. Energy Audit Programmes

There are presently no Energy Audit programmes running in Ireland.

2.1 The Energy Audit Grant Scheme (EAGS)

The Energy Audit Grant Scheme (EAGS) provided grant assistance to all organisations, which engaged independent consultant auditors to carry out site energy audits and surveys. The scheme was launched in September 1994, and applications were closed in October 1997. Successful applicants could obtain assistance up to 40% of the costs of the audit, subject to a maximum of £5,000.

2.1.1 Programme goals

The primary objectives of the scheme were to:

- Reduce national energy consumption
- Promote energy efficiency
- Stimulate an energy auditing “culture” within the market place

Specifically, the EAGS was implemented to assist in achieving the Centre's energy savings target, i.e. £40 million by the end of 1999.

2.1.2 Target sectors of the EAGS

The EAGS was available to all organisations including industry, the commercial sector and institutions.

2.1.3 Administration

The Irish Energy Centre on behalf of the Department of Transport, Energy & Communications, administered the scheme.

2.1.4 Implementing instruments

Financing/subsidies

The Energy Audit Grant Scheme provided financial support for site energy audits performed by independent consultants to determine exact energy usage and recommendations of the opportunities for savings. Audits were eligible for up to 40% grant aid to a maximum of £5,000.

2.1.5 Energy Audit Models

The audit reports, which were submitted to the Irish Energy Centre, as part of the Energy Audit Grant Scheme were required in the format as described in the following:

1. Introduction:

Brief presentation of the organisation, its operation and an outline of the scope of the study.

2. Summary:

Table of main recommendations, with implementation costs, estimated annual savings and payback periods for each recommendation.

Presentation of energy consumption, and energy cost per unit of energy and per unit of product (in tabular and pie chart form or equivalent).

Description of the Energy Flow for the site (in the form of a table, pie chart Sankey diagram or equivalent), including usage by the main cost centres.

Energy Usage Data Sheet for the site.

3. Site Description:

Full description of the site, buildings, processes and services (with A4 size site/building drawings, if available).

4. Thermal Energy:

Description of the role of thermal energy on the site. To include: description of HVAC services for buildings; thermal processes for industry.

- Fuels: details of fuel types, calorific values, storage facilities, consumption, costs.
- Energy conversion: listing and technical data on conversion plant; data on controls, efficiencies, demand patterns, physical condition.
- Distribution systems: description, technical data, performance.
- Energy Utilisation: listing and technical data on end-users; data on controls, efficiencies, demand patterns, physical condition.

5. Electrical Energy:

Description of the role of electrical energy on the site.

Analysis of supply system, load pattern, tariffs and power factor.

Distribution systems: description, technical data, and performance.

Energy Utilisation; listing and technical data on end users; data on controls, efficiencies, demand patterns, physical condition.

6. Analysis

Technical & commercial analysis of thermal systems.

Technical & commercial analysis of electrical energy systems.

Assessment of overall efficient use of energy.

Assessment of Potential for Specific Energy Conservation Technologies. (See Form 3).

7. Recommendations:

Recommendations for energy savings.

Recommendations to be grouped into 3 categories according to the level of investment:

- Low cost measures giving immediate or short term payback periods (less than 6 months)
- Medium cost measures, e.g. projects with payback periods of less than 3 years.
- High cost measures, e.g. projects with payback periods greater than 3 years or with significant capital investment.

Recommendations for further study.

2.1.6 Auditors' Tools

To some extent the format for the audit report could be said to be an audit tool. Except for this, there were no other tools available for the auditors.

2.1.7 Training and authorisation of consultants

Before commencement of the scheme, auditors were asked to submit their CVs and company names to the IEC. These names were then entered on a 'List of Auditors', which was supplied to companies that intended to carry out an audit. The 'Auditor List' did not confer any IEC 'approval' status on the named auditors but was merely provided by the Centre as a listing of auditors/consultants interested in doing audits. Once auditors were qualified they were eligible for inclusion in the listing. There was no formal training of the auditors.

2.1.8 Monitoring

There was no monitoring of the measures undertaken. However, around 50 percent of the audits, which were supported also resulted in applications to the Energy Efficiency Support Scheme. All measures were monitored in this last scheme.

2.1.9 Auditing volumes

As per December 1997, the status of the EAGS was as follows:

Audits			Approved funding for Audits		
Completed	In progress	Total	Completed	In progress	Total
328	155	480	£566.986	£369.663	£936.649

2.1.10 Results

Following the termination of the EAGS scheme, it was necessary to measure the impacts of the programme particularly regarding:

- The implementation of the audit recommendations, and their consequent effects in terms of energy savings
- The identification of prevalent replicable actions
- The potential both for safeguarding the present market penetration achieved, and for further initiatives and actions based on experience gained through the EAGS.

The above mentioned study draws the following conclusions:

- Overall, the majority of respondents felt that the EAGS scheme was beneficial insofar as it assisted in selling the idea to senior management
- Many companies had audits carried out in order to provide a current performance benchmark for energy consumption
- Respondents all gave very high satisfaction ratings for their dealings with the Irish Energy Centre and their Auditors, with average ratings of 86% and 79% respectively.
- From analysis of the databases, 52% of EEISS applications (excluding Priority Technology Calls) originated from the EAGS.
- A market exists for continued auditing services; however some sort of incentives may be required.
- Market penetration of the Scheme was primarily achieved through the auditors.
- At least one in five of the Self Audit companies had audits carried out with the assistance of the EAGS scheme. Self Audit companies comprise about 4% of the 328 audited companies, and this had a major effect on the total energy consumption attributable to audits.
- The audits identified many non-energy or cost saving action, such as demand reductions and power factor correction. From experience, identification of such easily attained cost savings frequently predisposes many companies to implement other audit recommendations.

2.1.11 Evaluation

The EAGS scheme was evaluated in a study carried out in late 1997/early 1998 in order to assess the impact, to identify the lessons, and to formulate recommendations aimed at achieving maximum replication/penetration following its termination. A total of 480 companies were grant aided under EAGS, of which 155 were still in progress at the time of the evaluation. The study was carried out in two phases. In the first phase, a stratified sample of twelve companies, i.e. four from each of the industrial, commercial and institutional/public sectors were examined. In the second phase – undertaken because the importance of the industrial sector was highlighted during the first phase – all 202 companies in the industrial sector were examined more closely, and a larger group of 20 companies were sent questionnaires and were interviewed.

3. Other Programmes including Energy Audits

3.1 Annual Self Audit & Statement of Energy Accounts Scheme

The still ongoing Annual Self Audit and Statement of Energy Accounts Scheme was piloted by the Irish Energy Centre in 1994, as an EU SAVE initiative. At that stage, 10 major Irish companies from several sectors were recruited and registered to the scheme. In 2001, the total number of member companies was 76.

Membership is drawn from all major industrial sectors. The annual fuel bills of the registered companies come to more than 311 million Euros. The current member companies are becoming a club of the top energy-aware industries where information, ideas and support are interchanged.

Workshops and events are held through the year, focusing on technologies and policy issues as well as offering support to the people directly involved in trying to implement the elements of the scheme and keep energy management projects on target. A newsletter, Energy Focus, is also published three times a year, offering further support.

In 2000, a workshop was held in which the key message was that, while the liberalisation of energy markets may lead to more competitive energy pricing, the environmental considerations of energy usage must also be seriously considered. Attendees were reminded that energy efficient alternatives such as CHP could provide a means of reducing energy costs, while contributing to national environmental objectives and security of energy supply.

Furthermore, a survey for energy management issues in member companies was undertaken, in which the members rated financial considerations such as payback period, the availability of funds and the capital costs as the number one factor in determining whether or not an energy efficiency project would be successfully implemented. Other challenges that were highlighted include, getting management to buy into the idea; the availability of staff resources and time and presence of a supportive corporate culture; the level of staff awareness; the capabilities for monitoring and targeting and, lastly, competing pressures to fulfil environmental commitments in response to regulatory obligations such as the EPA/IPC licence.

The actual workings of the scheme fall into four parts:

- Registration Certificate
- Energy Policy Statement
- Energy Audit
- Annual Statement of Energy Accounts

Registration Certificate

The first step in the scheme is to officially register Companies wishing to join the scheme who are then vetted by the Irish Energy Centre.

Registration when performed takes place at an official ceremony for each new group of companies. At this ceremony a registration certificate, co-signed by the chief executive and by the Minister of

State at the Department of Public Enterprise, is presented to the chief executive of each company. This certificate is an endorsement of the company's commitment to:

- Developing an Energy Use Management Programme
- Setting and Reviewing Energy Targets
- Undertaking an Annual Energy Audit
- Producing an Annual Statement of Energy Accounts

The idea is that the certificate, and the registration ceremony, should be an ideal springboard from which to launch an internal drive for better energy practices. The certificate is usually displayed in a prominent place in the company, and the registration ceremony also involves a considerable degree of press coverage, both locally and nationally.

Energy Policy Statement

The second stage of the scheme, which is optional but strongly encouraged, is the production of an internal energy policy statement. This is a further opportunity to cement internal awareness of and commitment to the scheme, as well as to energy management generally. A brief statement of intent towards energy practices, displayed prominently, can be a significant boost to internal awareness and promotional, since many companies already have similar statements for quality or for safety.

Energy Audit

The main focus within the company of the scheme is to create a climate in which companies make real energy savings in their operations. The usual means to identifying opportunities for energy savings, for acting upon them and for evaluating them is the annual energy audit.

Annual Statement of Energy Accounts

The fourth stage of the Annual Self Audit scheme follows directly on from the audit itself. This is the publication of the annual statement of energy accounts. This statement represents the public aspect of the company's commitment. In the statement they declare what they have achieved in terms of energy savings over the previous year, and what they intend to achieve in the coming year. Companies report on their energy usage for the year in question, and how that compares with previous years, and how it compares with their targets as declared in the last energy accounts statement. The statement also outlines plans for the coming year in terms of energy related projects, investments and practices. Participant companies can expect to reduce energy consumption by up to 10% over a period of three years, significantly contributing to competitiveness.

Companies who are leading the field of energy management deserve a public recognition of this, and the annual statement is their opportunity to publicise their achievements. It is also an opportunity for their peers to see what is being achieved in their sector. Of course, it also helps the companies involved to keep focused and to sustain the effort and meet their energy saving commitments.

3.1.1 Program goals

The overall aim of the Annual Self Audit and Statement of Energy Accounts Scheme is to recruit a set of standard bearing companies and support and publicise their efforts towards better energy management and ever lower fuel bills. The scheme is also part of Ireland's efforts to meet its Kyoto greenhouse gas commitments.

The original target concerning the number of participants in the scheme have been far exceeded and the emphasis is now on helping those within the scheme to consolidate their activities, rather than on attracting new members.

3.1.2 Target sectors of the Scheme

The programme is aimed solely at Industrial sector, and in particular those companies with energy bills of at least 0,63 million Euro.

3.1.3 Administration

The Irish Energy Centre administers the scheme on behalf of the Department of Public Enterprise.

The original 10 pilot companies, the Department of Public Enterprise (DPE) and the European Union, financed the initial phase. Funding is now provided by the DPE through the Irish Energy Centre. The scheme and the success of companies have been evaluated by the IEC from the annual statement of energy accounts produced by each company.

3.1.4 Implementing instruments

Being a member of the Scheme, Companies get access to information and awareness measures aimed at management and technical personnel. In addition, they are included in the yearly report, which is produced by the programme. There are no direct economic incentives for joining.

3.1.5 Energy Audit Models

There are no compulsory Energy audit models that should be used. It is up to the companies themselves to choose how they will undertake the audit.

The Energy Audit is an important part of the Scheme. This is the activity, which will determine the actual energy status of the companies. From process to maintenance, from equipment to general behaviour, the audits should uncover exactly where the energy is being used, where it is being wasted, and where opportunities may lie for reducing fuel bills. The Self Audit Scheme aims to facilitate these regular reviews. Often, when companies register to the scheme they choose to hire an outside consultant to carry out their first audit and then carry out subsequent audits internally. An outside, objective view can be profitable input to energy thinking in a company, but it is not compulsory.

3.1.6 Auditors' Tools

There are no official auditors tools.

3.1.6 Training and authorisation of consultants

There are no official training or authorisation of consultants

3.1.7 Monitoring

The Annual Statement of Energy Accounts is published every year. In the statement the companies declare what they have achieved in terms of energy savings over the previous year, and what they intend to achieve in the coming year. Companies report on their energy usage for the year in question, and how that compares with previous years, and how it compares with their targets as declared in the last energy accounts statement. Consequently, the companies must undertake monitoring of their energy usage. However, there is no direct monitoring of the results of the Energy Audits, i.e. there is no separate monitoring of measures undertaken as a consequence of the audits.

3.1.8 Auditing volumes

IEC does not keep track of the number of audits that are being carried out. The companies are only obliged to report the annual energy use in relation to their output.

3.1.9 Results

The result of the Scheme is expressed in the form of an energy performance index (EPI). This is based on the ratio of annual energy consumption to aggregate product output, measured in a format developed individually by each company to reflect their unique mix of products and processes. For a member's first year of joining, this index is set to 100, and subsequent improvements or deteriorations in its energy performance are reflected in a decline or increase in EPI.

The table below shows the result of the scheme in 2000.

SELF AUDIT SCHEME – OVERALL PERFORMANCE	
TOTAL ENERGY CONSUMPTION (2000)	14,865 GWh
AGGREGATE EPI (1999)	94,07
AGGREGATE EPI (2000)	93,21
IMPROVEMENT IN EPI (1999-2000)	0,86
IMPROVEMENT IN EPI (1998-1999)	2,03
ENERGY DECREASE (1999-2000)	137,16 GWh
RESULTING DECREASE IN CO₂ EMISSIONS	57,450 TONNE

3.1.7 Evaluation

The Scheme was positively evaluated in 1997.

4. References

Reference material

- Annual Self Audit & Statement of Energy Accounts Scheme, Annual Report 1999:2000

Web-sites

- www.irish-energy.ie